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LAHIVE & COCKFIELD, LLP/THE MATHWORKS
FLOOR 30, SUITE 3000
One Post Office Square
Boston, MA 02109-2127

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ALVESTEFFER, STEPHEN D	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,152	EDSON ET AL.	
	Examiner	Art Unit	
	Stephen Alvesteffer	2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,12-36,38-50 and 52-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10,12-36,38-50 and 52-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed November 19, 2008. Claims 1, 44, 56, and 59 are amended. Claims 2, 11, 37, and 51 are cancelled. Claims1, 30, 44, and 59 are independent. Claims 1, 3-10, 12-36, 38-50, and 52-59 remain pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 25, 28, 30-33, 36, 42-47, 50, and 56-59 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (hereinafter Johnson), United States Patent Application Publication number 2003/0001896.

Regarding claim 1, Johnson teaches a computer readable storage medium storing computer executable instructions that when executed on a processor manage a graphical interface, the medium storing:

instructions for providing a graphical interface, a hardware device and a software device being accessible through the graphical interface, the software device being accessible to a computer (see paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a*

measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device");

instructions for providing at least one interactive hardware object accessible to the computer, where the hardware object represents the hardware device and is depicted in the graphical interface, the hardware object interacting with the hardware device (see Johnson paragraph [0099]; "*the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function*");

instructions for providing a software object, wherein the software object is representative of the software device, where the software object is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; "*Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the*

measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12"; see also paragraph [0107]; "*The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770*");

instructions for receiving, from a user, a plurality of configurations of the hardware device, each configuration allowing the user to edit at least one property of the hardware object (see Figure 26 and paragraph [0138]; "*the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)*"); and

instructions for displaying the plurality of configurations simultaneously, wherein each configuration corresponds to a unique hardware object that represents the hardware device (see Johnson Figure 26 and paragraph [0138]; "*the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)*"; see also Johnson paragraph [0012]; "*The GUI may receive user input characterizing the measurement task, where the user input indicates values for a plurality of parameters of the measurement task. For example, the parameters may include five or more of measurement type, device type, channel parameters, sampling parameters, trigger*

parameters, clock parameters, scaling parameters, synchronization parameters, routing parameters, and data publishing parameters").

Regarding claim 3, Johnson teaches providing an analysis object, wherein said analysis object is adapted to communicate with at least one of said hardware object and said software object for analysis of data from at least one of said hardware object and said software object (see paragraph [0255]; "*Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12*").

Regarding claim 4, Johnson teaches instructions for receiving code for execution by the hardware object (see Johnson paragraph [0099]; "*underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element…*").

Regarding claim 5, Johnson teaches that a plurality of hardware objects are provided for a single hardware device (see paragraph [0100]; Johnson's invention allows several different types of nodes to be created to accomplish various measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 6, Johnson teaches that a plurality of hardware objects are provided for a plurality of hardware devices. (see paragraph [0100]; Johnson's invention allows several different types of nodes to be created to accomplish various measurement tasks such as reading and writing to and from a measurement device).

Regarding claim 25, Johnson teaches that the graphical interface is implemented with an extensible API (see Johnson paragraph [0158]).

Regarding claim 28, Johnson teaches that the graphical interface is adapted to operate on a plurality of operating systems (see Johnson paragraph [0053]; Although Johnson does not specify exactly which operating systems or exactly how many operating systems his invention supports, it is inherent and well-known in the art that software code is capable of executing on more than one different operating system).

Regarding claim 30, Johnson teaches a method for managing an interface, the method comprising:

providing a graphical interface, a hardware device and a software device being accessible through the graphical interface, the software device being accessible to a computer (see paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device*");

providing at least one hardware object accessible to the computer, where the hardware object represents the hardware device and is depicted in the graphical interface, the hardware object configured to be interactive with the hardware device

(see paragraph [0099]; "*the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function*");

providing at least one software object, representative of the software device, where the software object is depicted in the graphical interface, and is configured to be interactive with the software device (see paragraph [0107]; "*The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770*") and the graphical interface being updated in response to a change in the hardware object or the software object (see Figure 26 and paragraph [0242]; "*parameters specific to the selected device may be configured in this panel. In this example, logic parameters related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line state, and idle state pattern. Of course, when other devices are selected, other corresponding parameters and controls may be presented*"); and

displaying the hardware object and the software object to a user (see Johnson Figure 16 and paragraph [0136; "*the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16*").

Claims 31 and 36 recite a method with substantially the same limitations as claims 3 and 4. Therefore, the claims are rejected under the same rationale.

Claims 32 and 33 recite a method with substantially the same limitations as claims 5 and 6, respectively. Therefore, claims 32 and 36 are rejected under the same rationale.

Claims 42 and 43 recite a method with substantially the same limitations as claims 26 and 27, respectively. Therefore claims 42 and 43 are rejected under the same rationale.

Regarding claim 44, Johnson teaches a computing device comprising:

a storage medium for storing and a processor for processing (see Johnson claim 41; "*a processor; and a memory medium…*");

a graphical interface, at least one hardware device and one software device being accessible through the graphical interface (see paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple*

measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device");

a plurality of hardware objects accessible to the computer, where each of the hardware objects represents a hardware device and is depicted in the graphical interface, each hardware object configured to be interactive with the hardware device (see paragraph [0099]; "*the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function*");

a plurality of software objects, each representative of a software device accessible to the computer, where each of the software objects is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; "*Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12*";

see also paragraph [0107]; "*The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770*"); and

a display device to display the plurality of hardware objects and the plurality of software objects and at least one configuration of one of the hardware objects or one of the software objects to a user in a single graphical interface simultaneously (see Johnson Figure 16, Figure 29 showing "Voltage" drop-down box, and paragraph [0136; "*the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16*").

Claims 45 and 50 recite a system with substantially the same limitations as claims 3 and 4. Therefore, the claims are rejected under the same rationale.

Claims 46 and 47 recite a system with substantially the same limitations as claims 5 and 6, respectively. Therefore, the claims are rejected under the same rationale.

Regarding claim 56, Johnson teaches that the hardware object enables communication between the graphical interface and the hardware device, and the software object enables communication between the graphical interface and the software device (see paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device*").

Claim 57 recites a method having substantially the same limitations as the computer readable storage medium of claim 56. Therefore, claim 57 is rejected under the same rationale.

Claim 58 recites a computing device having substantially the same limitations as the computer readable storage medium of claim 56. Therefore, claim 57 is rejected under the same rationale.

Regarding claim 59, Johnson teaches a computer readable storage medium storing computer executable instructions that when executed on a processor manage a graphical interface, the medium storing:

instructions for providing a graphical interface, at least one hardware device and one software device being accessible through the graphical interface (see paragraph

[0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device*"), the graphical interface being updated in response to a change in the hardware device or the software device (see Johnson Figure 26 and paragraph [0242]; "*parameters specific to the selected device may be configured in this panel. In this example, logic parameters related to the PCI-MIO-16E-1 device are shown, including high/low state levels, idle line state, and idle state pattern. Of course, when other devices are selected, other corresponding parameters and controls may be presented*");

instructions for providing a plurality of hardware objects accessible to the computer, where each of the hardware objects represents a hardware device and is depicted in the graphical interface, each hardware object configured to be interactive with the hardware device (see paragraph [0099]; "*the graphical icon that visually represents the node represents the function, and the underlying program instructions and/or data structures which are represented by the node graphical icon are actually performing the function. Thus the specification and claims of the present application refer generally to a node performing a function, it being understood that the node*

includes or represents underlying program instructions and/or data structures which are executed by a processor (or programmable hardware element) to perform the function");

instructions for providing a plurality of software objects, each representative of a software device accessible to the computer, where each of the software objects is depicted in the graphical interface and is configured to be interactive with the software device (see paragraph [0255]; "*Upon execution of the graphical program, the node may receive the measurement task specification as input, invoke an expert system to analyze the measurement task specification and generate a run-time specification for the measurement task in response to the analyzing, as shown in 750 and 770 of FIG. 12*"; see also paragraph [0107]; "*The run-time builder may also provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software devices in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may configure one or more measurement devices according to the run-time specification 770*");

instructions for providing a plurality of configurations of the hardware object, each configuration allowing the user to edit at least one property of the hardware object (see Figure 26 and paragraph [0138]; "*the GUI may display a third panel, e.g., a channel configuration panel, which presents options for specifying values of one or more parameters for the indicated channel(s)*");

instructions for displaying the plurality of hardware objects and the plurality of software objects and at least one of the plurality of configurations of one of the

hardware objects or one of the software objects to a user in a single graphical interface simultaneously (see Johnson Figure 16, Figure 29 showing "Voltage" drop-down, and paragraph [0136; "*the GUI may display a second panel, e.g., a channels selection panel, which presents a list of available devices and corresponding channels. The available devices may correspond to the indicated measurement type. For example, if the selected measurement type were voltage, the devices listed may be those devices available to the system which are suitable for measurement a voltage. An example of the device and channel list is shown in FIG. 16*");

instructions for receiving, from a user, a selection of a configuration from the plurality of configurations (see Johnson paragraph [0103]; "*In one embodiment, the run-time specification 770 may comprise a specification of the parameters of one or more measurement primitives, where each measurement primitive comprises a software object and corresponding configuration settings, and where each measurement primitive is operable to implement at least a portion of the measurement task*"); and

instructions for communicating with the hardware device corresponding to the selected configuration using the selected configuration (see Johnson paragraph [0103]; "*the run-time specification 770 may be useable to configure one or more measurement devices to perform the measurement task, and may be further useable to generate a run-time 790 which is executable to perform the measurement task using the configured one or more measurement devices*").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7, 8, 12-14, 34, 35, 38, 48, 49, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Fuller, III et al. (hereinafter Fuller), United States Patent Application Publication number 2003/0035008.

Regarding claim 7, Johnson teaches every limitation of claim 7 except instructions for scanning for available hardware; and instructions for creating an additional hardware object for each hardware device detected and not already associated with a hardware object. Fuller teaches a method and apparatus for controlling an instrumentation system that automatically scans for available hardware (instruments) and allowing users to select hardware (instruments) from a list of detected hardware (instruments) (see paragraph [0020], "*the computer system may automatically detect the one or more message-based instruments that are connected to the computer system. In other words, the computer system may automatically scan for message-based instruments coupled to the system*"). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the scanning for available hardware of Fuller with the invention of Johnson in order to allow custom hardware components to be added to the system.

Regarding claim 8, Johnson/Fuller teaches all the steps of claim 8 except that instructions for scanning involves instructions for receiving user-defined commands to be sent to the hardware device to attempt to identify the hardware device. Fuller teaches allowing the user to initiate a hardware scan. A user-initiated hardware scan is being interpreted with the broadest reasonable interpretation to be the same as sending user-defined command to a hardware device (see paragraph [0020], "*A user interface (UI) may be provided that allows the user to initiate a scan for message-based instruments. The user may scroll through and select an instrument from a list of detected instruments, or may otherwise specify a particular instrument to be communicated with*"). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the user-initiated hardware scan of Fuller with the invention of Johnson in order to allow custom hardware components to be added to the system on demand.

Regarding claim 12, Johnson/Fuller teaches every limitation of claim 12 except that at least one of instructions for providing at least one hardware object and providing at least one software object further comprises instructions for accessing at least one of a hardware object and a software object located on a remote computer. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of

Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Regarding claim 13, Johnson/Fuller teaches every limitation of claim 13 except that instructions for accessing is performed through a web page. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Regarding claim 14, Johnson/Fuller teaches every limitation of claim 14 except that instructions for accessing is performed over a network. Fuller teaches that tasks associated with hardware instruments may be created and made accessible on a web site (see paragraph [0168]; "*Tasks may be collected and organized for distribution, for example through a website*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Fuller with the invention of Johnson in order to allow measurement or testing over a network.

Claims 34 and 35 recite a method with substantially the same limitations as claims 7 and 8, respectively. Therefore, the claims are rejected under the same rationale.

Claim 38 recites a method with substantially the same limitations as claim 12. Therefore, claim 38 is rejected under the same rationale.

Claims 48, 49, and 52 recite a system with substantially the same limitations as claims 7, 8, and 12, respectively. Therefore, the claims are rejected under the same rationale.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Hsiung et al. (hereinafter Hsiung), United States Patent Application Publication number 2003/0083756.

Regarding claim 9, Johnson teaches all the elements of claim 9 except that the analysis object filters data. Hsiung teaches a system for monitoring industrial components with an analysis component that performs filtering (see paragraph [0056]; "*The upload process takes data from the acquisition device and uploads them into the main process manager 314 for processing. Here, the data are in electronic form. In embodiments where the data has been stored in data storage, they are retrieved and then loaded into the process. Preferably, the data can be loaded onto workspace to a text file or loaded into a spread sheet for analysis. Next, the filter process 302 filters the data to remove any imperfections*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the filtering of data of Hsiung with the invention of Johnson for the purpose of providing data analysis functionality.

Regarding claim 10, Johnson teaches all the elements of claim 10 except that the analysis object plots data. Hsiung teaches a system for monitoring industrial components with an analysis component that performs plotting of data (see paragraph [0058]; "*A baseline correction process may also find response peaks, calculate* $\Delta R/R$,

and plot the ΔR/R verses time stamps, where the data have been captured"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plotting of data of Hsiung with the invention of Johnson for the purpose of providing data analysis functionality.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Fuller (2003/0035008) *supra*, and Hsiung (2003/0083756) *supra*.

Regarding claim 15, Johnson/Fuller teach every limitation of claim 15 except that instructions for accessing is performed by passing commands over the network in a MATLAB environment. Hsiung teaches using MATLAB in association with the invention (see paragraph [0534]; "*Multi-way PCA is a natural choice since PCA is already included, algorithms are available for evaluation in Matlab toolboxes, and the technique serves as a good benchmark when discussing benefits of other algorithms*"). It would have been obvious to one of ordinary skill in the art that the MATLAB environment could be used as taught by Hsiung with the invention taught by Johnson/Fuller.

Claims 16-17, 27, 39, 40, 43, 53, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Schmit et al. (hereinafter Schmit), United States Patent Application number 2003/0004670.

Regarding claim 16, Johnson teaches every limitation of claim 16 except instructions for modifying at least one of the hardware object and the software object.

Schmit teaches a system and method for building a measurement system in which the most efficient protocol to use with each measurement device is determined and applied (see Schmit paragraph [0500]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the hardware protocol selection system of Schmit with the invention of Johnson for the purpose of making the measurement system more efficient.

Regarding claim 17, Johnson/Schmit teaches that modifying specifies a protocol for use by the hardware object for communication with the hardware device (see Schmit paragraph [0500]).

Regarding claim 27, Johnson/Schmit teaches instructions for generating an analysis object that can be used in SIMULINK (see Johnson paragraph [0101]; Johnson's invention makes use of the LabVIEW environment for generating analysis objects; see also Schmit paragraph [0619]; Schmit teaches that SIMULINK is similar in function to LabVIEW).

Claims 39 and 40 recite a method with substantially the same limitations as claims 16 and 17. Therefore, claims 39 and 40 are rejected under the same rationale.

Claim 43 recites a method with substantially the same limitations as claim 27. Therefore, claim 43 is rejected under the same rationale.

Claims 53 and 54 recite a system with substantially the same limitations as claims 16 and 17. Therefore, claims 53 and 54 are rejected under the same rationale.

Claims 18-24, 26, 41, 42, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra*, Hsiung (2003/0083756) *supra*, and Pike et al. (hereinafter Pike), United States Patent Application Publication number 2003/0056018.

Regarding claim 18, Johnson/Hsiung teaches every limitation of claim 18 except that modifying modifies a value stored in an array of an array-based environment. Pike teaches a system for linking users to control instruments wherein an array-based environment can be used to change the properties of the control instruments (see Pike paragraph [0010]; "*The user may also create an object array in response to an array creation command. The object array includes as elements, a first and a second instrument object. The user may change the properties of the first and second communication channels by changing properties of the object array*"; see also Pike paragraph [0070]; "*The array-based environment 104 includes functions used by the user 30 to create an instrument object 108 through function calls 46, as well as to configure an instrument object's properties and to connect the instrument object with one of the control instruments 22*"). Pike further teaches that the graphical user interface can be used to export data to an array-based environment such as MATLAB (see paragraph [0040]; "*User 30 may send a list of requests or commands to processor 20 from the GUI 14 to establish a communication channel between the computer 12 and the control instruments 22. The user 30 does so by writing a user program 80, which resides in memory 26 of computer 12. The user program 80 may be associated with the syntax of, for example, any interpreted programming environment. An interpreted*

programming environment may be any proprietary program that performs mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments, among many others. An example of an interpreted programming environment is MATLAB.RTM. from MathWorks, Inc., of Natick, Mass"). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the array-based environment steps of Pike with the measurement systems of Johnson/Hsiung in order to provide array-based control of the measurement devices.

Regarding claim 19, Johnson/Hsiung/Pike teaches instructions for modifying a value stored in an array of an array-based environment, thereby modifying at least one of the hardware object and the software object (see Pike paragraphs [0010], [0070], and [0040]).

Regarding claim 20, Johnson/Hsiung/Pike teaches instructions for exporting data from the graphical interface to an array-based environment (see Pike paragraphs [0010], [0070], and [0040]).

Regarding claim 21, Johnson/Hsiung/Pike teaches instructions for converting user actions with the graphical interface into code (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 22, Johnson/Hsiung/Pike teaches that the code is created in a MATLAB environment (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code

capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 23, Johnson/Hsiung/Pike teaches that the code comprises steps to create an analysis object, configure the analysis object and write and read data from the analysis object (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 24, Johnson/Hsiung/Pike teaches that the code comprises an analysis routine (see Pike paragraphs [0010], [0070], and [0040]; Pike teaches converting user actions with the graphical interface into interpreted programming code capable of performing mathematical computations for modeling, simulation, graphics, or data analysis related to control instruments).

Regarding claim 26, Johnson/Hsiung/Pike teaches instructions for generating an analysis object so that the analysis object can be used in MATLAB (see Pike paragraph [0040]).

Claim 41 recites a method having substantially the same limitations as claim 18. Therefore, claim 41 is rejected under the same rationale.

Claim 42 recites a method having substantially the same limitations as claim 26. Therefore, claim 42 is rejected under the same rationale.

Claim 55 recites a system having substantially the same limitations as claim 18. Therefore, claim 55 is rejected under the same rationale.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (2003/0001896) *supra* and Phathayakorn et al. (hereinafter Phathayakorn), United States Patent number 5,986,653.

Regarding claim 29, Johnson teaches every limitation of claim 29 except that the graphical interface comprises a tree view, wherein the tree view groups the hardware objects and the software objects by a functionality characteristic. Tree views of hardware and software objects grouped by functionality were a well-known graphical user interface technique at the time the invention was made. Phathayakorn shows selecting a functional group of objects from a tree view graphical representation (see Figures 2A-5B). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the tree view graphical representation of Phathayakorn to the invention of Johnson in order to provide a representation of the devices on the user interface.

Response to Arguments

Applicant has amended claim 56 to recite a “computer readable storage medium” to match the computer readable storage medium of claim 1, from which claim 56 depends. Accordingly, the objection to claim 56 is withdrawn.

Applicants assert that Johnson fails to disclose instructions for displaying the plurality of configurations simultaneously, wherein each configuration corresponds to a

unique hardware object that represents the hardware device. The examiner respectfully disagrees.

It is a stated goal of Johnson to solve the problem of configuring multiple measurement devices simultaneously (see Johnson paragraph [0009]; "*One drawback of some current measurement system architectures is that complex measurement tasks involving multiple devices require that each device be programmed separately*"). To solve the stated problem, Johnson teaches embodiments where a graphical user interface allows a user to configure a plurality of measurement devices (Johnson paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices*").

Johnson also explicitly teaches each configuration corresponds to a unique hardware object that represents the hardware device (see Johnson paragraph [0107]; "*The run-time builder may also* ***provide various parameters to hardware and/or software resources or devices comprised in the system to configure the hardware and/or software device****s in the system according to the run-time specification to allow these devices to be used during execution of the run-time 790. In other words, the run-time builder 780 may* ***configure one or more measurement devices*** *according to the run-time specification 770*", emphasis added).

Applicant asserts that Johnson does not disclose the graphical interface being updated in response to a change in the hardware object or the software object. The examiner respectfully disagrees.

Johnson teaches configuring measurement devices. Measurement devices inherently display changes in the device (i.e. monitoring conditions). Johnson explicitly teaches this type of behavior in paragraph [0113], "*determine a set of hardware, hardware connections, hardware settings, and software configuration that can maintain a level in a tank (whose simulated linear model is specified to be M) by monitoring the present value of the tank level and controlling a valve connected to the tank. The solution should display the tank level and valve position on an HMI*".

Applicant asserts that Johnson does not allow a plurality of hardware and software objects, and a configuration of an object, to be displayed in a single graphical interface simultaneously. The examiner respectfully disagrees for the reasons above, and also that Johnson Figures 28A-G and 29 show a single graphical interface displaying configuration of a plurality of hardware and software objects. Johnson Figures 28A-G show a user interface having several devices linked together to perform a complex measurement task. Johnson paragraphs [0265-0267] describe configuring a complex task having multiple devices of Figure 29, "*In one embodiment, the measurement task may include a complex measurement operation using a plurality of measurement devices, where at least one of the measurement devices is a measurement hardware device. In another embodiment, at least one of the plurality of*

measurement devices may be a virtual measurement device, i.e., a device implemented in software". Applicant is further directed to the drop-down box, having "Voltage" currently selected, in Johnson Figure 29.

Applicant asserts that Johnson does not teach displaying the plurality of hardware objects and the plurality of software objects. The examiner respectfully disagrees.

Johnson does not make a distinction between configuring a hardware measurement device and a virtual measurement device. They are both treated in the same manner in the user interface when configuring the devices (see Johnson paragraph [0125]; "*a graphical user interface (GUI) may be displayed which presents information for guiding the user in specifying a measurement task. The measurement task may involve a simple measurement using a single instrument or device, or may comprise a complex measurement operation using a plurality of measurement devices. In one embodiment, at least one of the plurality of measurement devices may comprise a measurement hardware device. In another embodiment, at least one of the plurality of measurement devices may comprise a virtual measurement device*").

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Dunn et al. (US 2004/0027392) System and method for quick access of computer resources to control and configure a computer

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Alvesteffer whose telephone number is (571)270-1295. The examiner can normally be reached on Monday-Friday 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Bashore can be reached on (571)272-4088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen Alvesteffer
Examiner
Art Unit 2175

/S. A./
Examiner, Art Unit 2175

/William L. Bashore/
Supervisory Patent Examiner, Art Unit 2175